Australian *Flexible* Learning Framework

supporting e-learning opportunities

OPE R OUTDOOR POWER EQUIPMENT RESOURCES

OPE T OUTDOOR POWER EQUIPMENT TRAINING

User guide

flexiblelearning.net.au

Australian Government

Department of Education, Employment and Workplace Relations

Acknowledgement

This Industry Integration of E-learning industry sector outcome has been developed for the Outdoor Power Equipment Association by Kangan Institute, with seed funding from the national training system's e-learning strategy, the Australian Flexible Learning Framework.

For more information on the Australian Flexible Learning Framework:

Phone: (07) 3307 4700

Fax: (07) 3259 4371

Email: enquiries@flexiblelearning.net.au

Website: flexiblelearning.net.au

GPO Box 1326

Brisbane QLD 4001

© Commonwealth of Australia 2010

Contents

User guide 1
Introduction 4
Units of competence 4
Learning design 5
The e-learning materials 6
Training activities 6
Learner resources 7
Activity and resource topic list 7
Navigating the e-learning materials 10
Activity pages 11
Resource pages 13
Hardware and software requirements (Colin – taken from toolbox) 15
Hardware 15
Software 15
Online teaching strategies 16
Collaboration and interaction 16
Tips for implementation 18
Preparing the learners 20

© Commonwealth of Australia 2010

Introduction

These e-learning materials have been developed to help promote the uptake of apprenticeships in the outdoor power equipment industry nationally by providing high quality learning materials that can be shared by RTOs around Australia.

The materials are designed for students studying Certificate II and III in Outdoor Power Equipment (OPE), and are suitable for web-based delivery within a learning management system that can track user progress and maintain records of completion.

Units of competence

Three units of competency are covered by these online learning materials.

- AUR201570A Service engines and associated engine components (outdoor power equipment).
- AURP245171A Service and repair faults in rotary cutting systems.
- AURP322776A Test and service 240V portable generators.

These three units are Group A - Specialist electives in the following qualifications

- AUR20810 Certificate II in Outdoor Power Equipment
- AUR30710 Certificate III in Outdoor Power Equipment

© Commonwealth of Australia 2010

Learning design

Many of the learners who participate in the Certificate II or III in Outdoor power equipment are young (often under 21) and are undertaking an apprenticeship. They are increasingly demanding the option to undertake parts of their course using interactive, screen-based delivery. Increasingly computer literate, they often chose technology as a means for communication, entertainment and information and expect an element of their learning to also reflect this.

This learner group can be characterised as Generation-Y learners. They are technologically astute, impatient and street-smart. They are often turned off by anything without a technology component. They are stimulated by real life learning situations where they are able to experience the learning rather than it being explained to them.

The explanation of theory generally uses language and terminology unfamiliar to many learners. To assist in the learning process, where possible the information in this resource is provided in simple terms using clear English. The terminology used in the delivery of information mirrors terminology used in the workplace.

To meet the needs of these learners the learning design features:

- immediate engagement of the learner in the learning process. This is achieved by the presentation of questions that challenge the learner's existing knowledge and provide constructive feedback
- Interactive activities that require learner involvement and assist in the understanding of concepts and principles
- the use of visual aids (for example, video, images) that require interaction from the learner
- delivery of underpinning knowledge in small bite-sized chunks of information available on a needs basis

© Commonwealth of Australia 2010

The e-learning materials

The materials are designed to allow the learner flexibility to navigate to any area they choose to undertake learning.

A menu system provides this flexibility while also presenting the learning in a logical learning flow.

The e-learning materials are presented in two sections.

- Training activities
- Learner resources

Training activities

Training activities exist for each of the three units of competency.

The activities are designed to challenge the learner's knowledge on topics associated to the unit of competency.

Activities types include

- Presenting situations where the learners is asked to think and make a decision
- Questioning knowledge with multiple choice questions
- Providing feedback to inform why learner answers are right or wrong
- Moving items on screen to complete a task
- Rotating images on screen to view and make decisions
- Identification of images showing real workshop tools, equipment and processes
- Provision of scoring of some question banks to allow learners to check their knowledge against themselves or others
- Using documents such as service schedules to answer questions
- Completing practical workshop tasks

© Commonwealth of Australia 2010

Learner resources

Resources exist for each of the three units of competency and provide information in an easy to understand format. Information is separated into topics and presented using images, text and video.

Images and video all show people, equipment and processes from real outdoor power equipment workplaces.

Learners can access these resources at any time. E.g. Before attempting an activity, while engaged in an activity, or after completing an activity.

Activity and resource topic list

The following table states the activities and resource topics available for each unit of competency

Unit: AUR201570A Service engines and associated engine components (outdoor power equipment)	
Activities	**Resource topics (and subtopics)**
Safety • Hazards • Personal protective equipment • Workshop equipment Engine principles • Engine identification • Two stroke operation • Four stroke operation • Ignition methods • Basic engine terms Service procedures • Service schedules Lubricants • Types of lubricants • Management of lubricants Carry out service	Engine principles • Internal combustion engines • Basic components • Basic operation • Engine operation cycle • Spark ignition • Compression ignition • Bore and stroke • Displacement • Compression ratio • Ignition timing • Engine configuration • Engine identification Two stroke engines • Two stroke design • Engine components • Two stroke operation • Reed valve Four stroke engines • Four stroke design • Engine components • Four stroke operation • Valve configuration • Valve actuation

© Commonwealth of Australia 2010

	Engine servicing • Introduction • Safety • Oil change • Air filter • Fuel filter • Spark plug • Adjustments • Testing Lubrication • Introduction • Function • Viscosity • Additives • Oil classification • Why change oil? • Oil change intervals • Petrol engine oil • Diesel engine oil • Two stroke engine oil
Unit: AURP245171A Service and repair faults in rotary cutting systems	
Activities	**Resource topics (and subtopics)**
Principles Service and repair	Introduction Safety Mowers • Introduction • Push mower • Ride on mower Drive systems Belt and pulley Servicing • Introduction • Mower blades • Blade removal/refit • Blade cutting angle • Adjusting blade angle Four stroke engines • Four stroke design • Engine components

© Commonwealth of Australia 2010

	• Four stroke operation • Valve configuration • Valve actuation Rotary hoe/tiller Lawn/garden edger Brush cutter/line trimmer Mulcher
Unit: AURP322776A Test and service 240V portable generators	
Activities	**Resource topics**
Service principles Test and service	Introduction Safety Servicing Testing

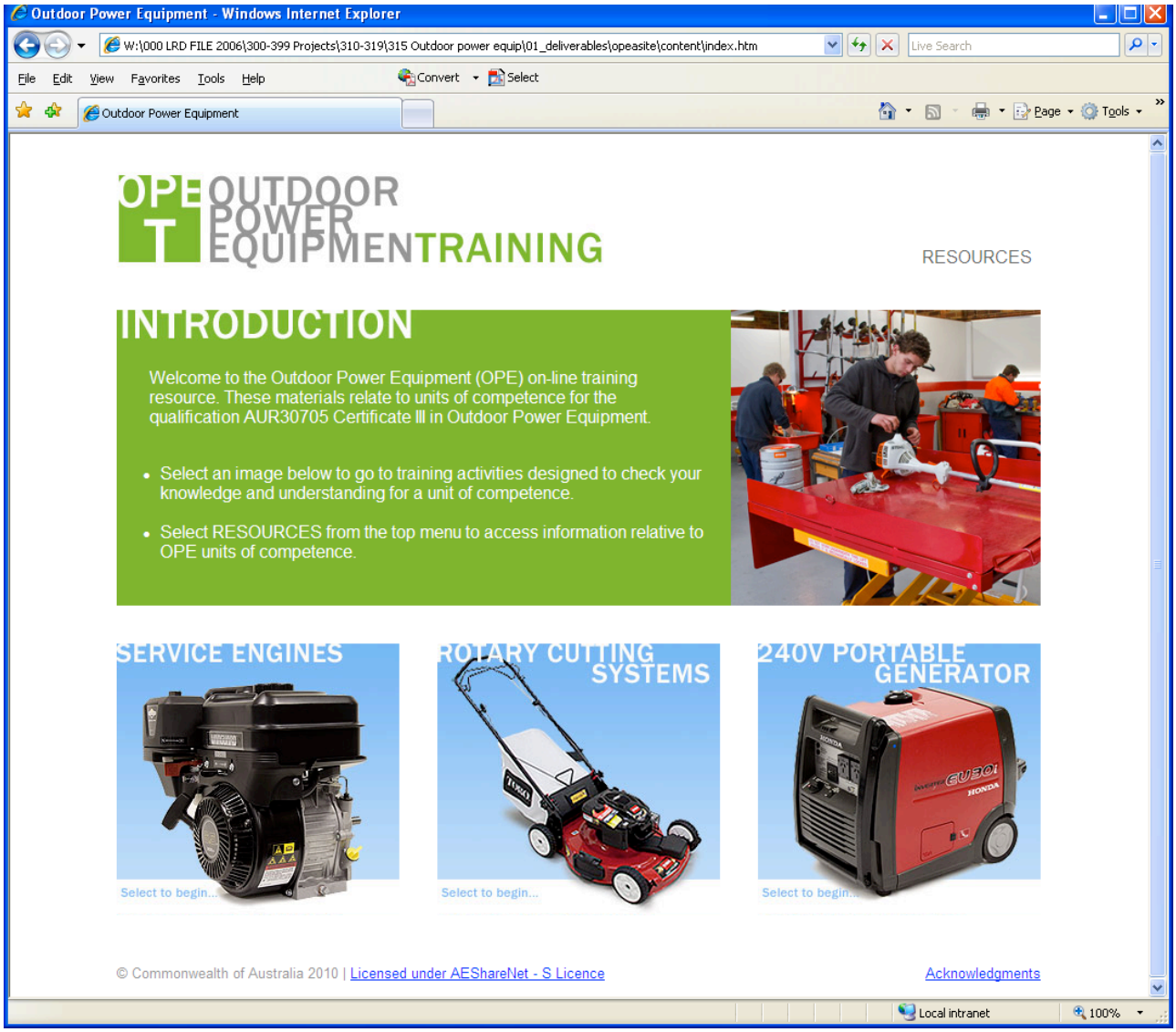
© Commonwealth of Australia 2010

Navigating the e-learning materials

On entry to the e-learning materials the following **Home Page** is displayed.

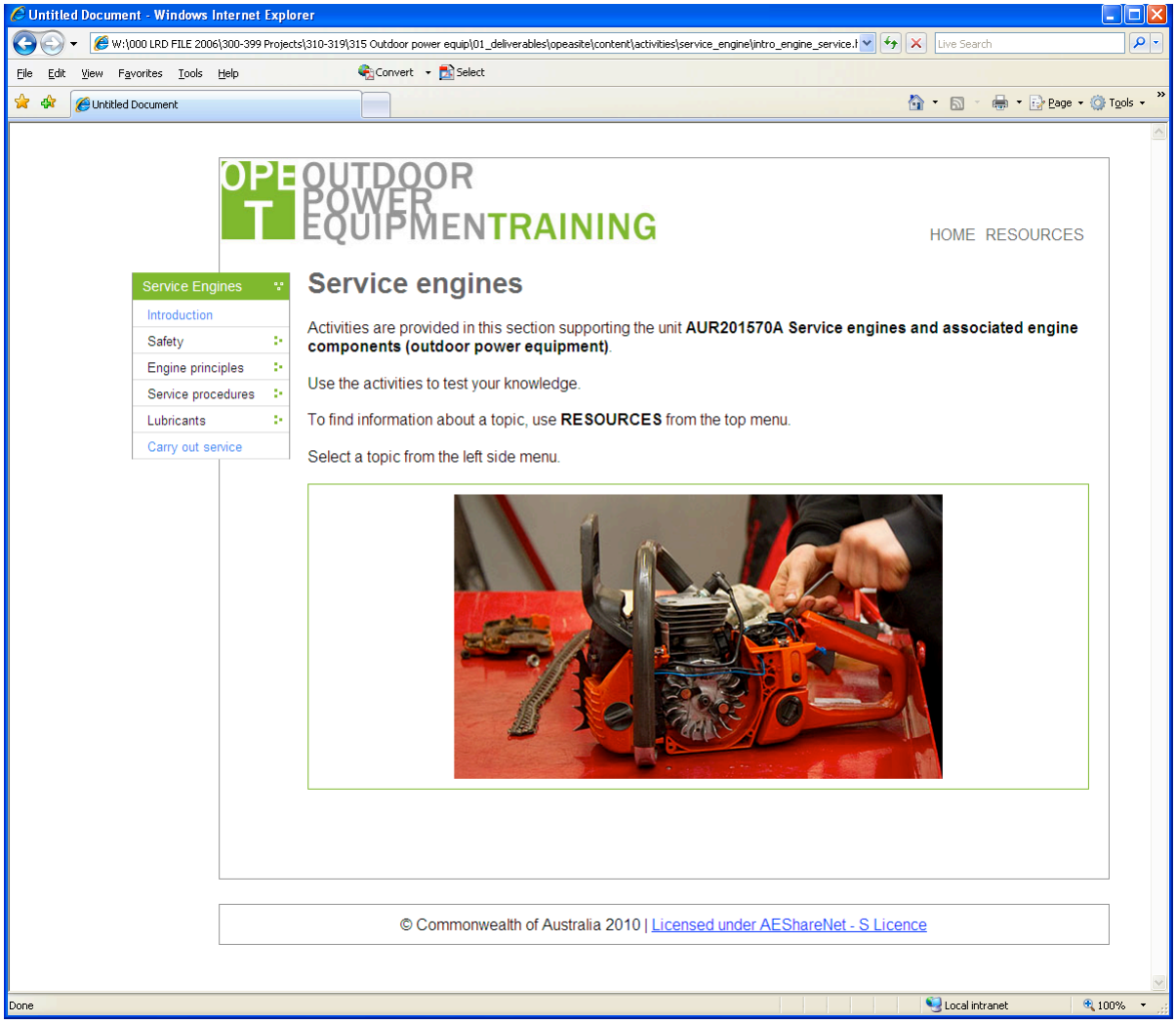
From this page access to the **Training activities** for any of the three units of competence is achieved by selecting one of the large associated images at the bottom of the page.

Alternatively the **Resources** available for any of the three units are accessed by selecting the ‘resources’ link at the top right hand side.


Outdoor Power Equipment - Windows Internet Explorer
W:\000 LRD FILE 2006\300-399 Projects\310-319\315 Outdoor power equip\01_deliverables\opeasite\content\index.htm
Live Search
File Edit View Favorites Tools Help
Convert
Select
Outdoor Power Equipment
Page
Tools
OUTDOOR POWER EQUIPMENT TRAINING
RESOURCES
INTRODUCTION
Welcome to the Outdoor Power Equipment (OPE) on-line training resource. These materials relate to units of competence for the qualification AUR30705 Certificate III in Outdoor Power Equipment.
Select an image below to go to training activities designed to check your knowledge and understanding for a unit of competence.
Select RESOURCES from the top menu to access information relative to OPE units of competence.
SERVICE ENGINES
Select to begin...
ROTARY CUTTING SYSTEMS
Select to begin...
240V PORTABLE GENERATOR
Select to begin...
© Commonwealth of Australia 2010 | Licensed under AEShareNet - S Licence
Acknowledgments
Local intranet
100%

Activity pages

After selecting the training activities for the unit Service engines the following introduction page is shown. This page allows navigation using the LHS menu to all the learning activities associated to service engines.

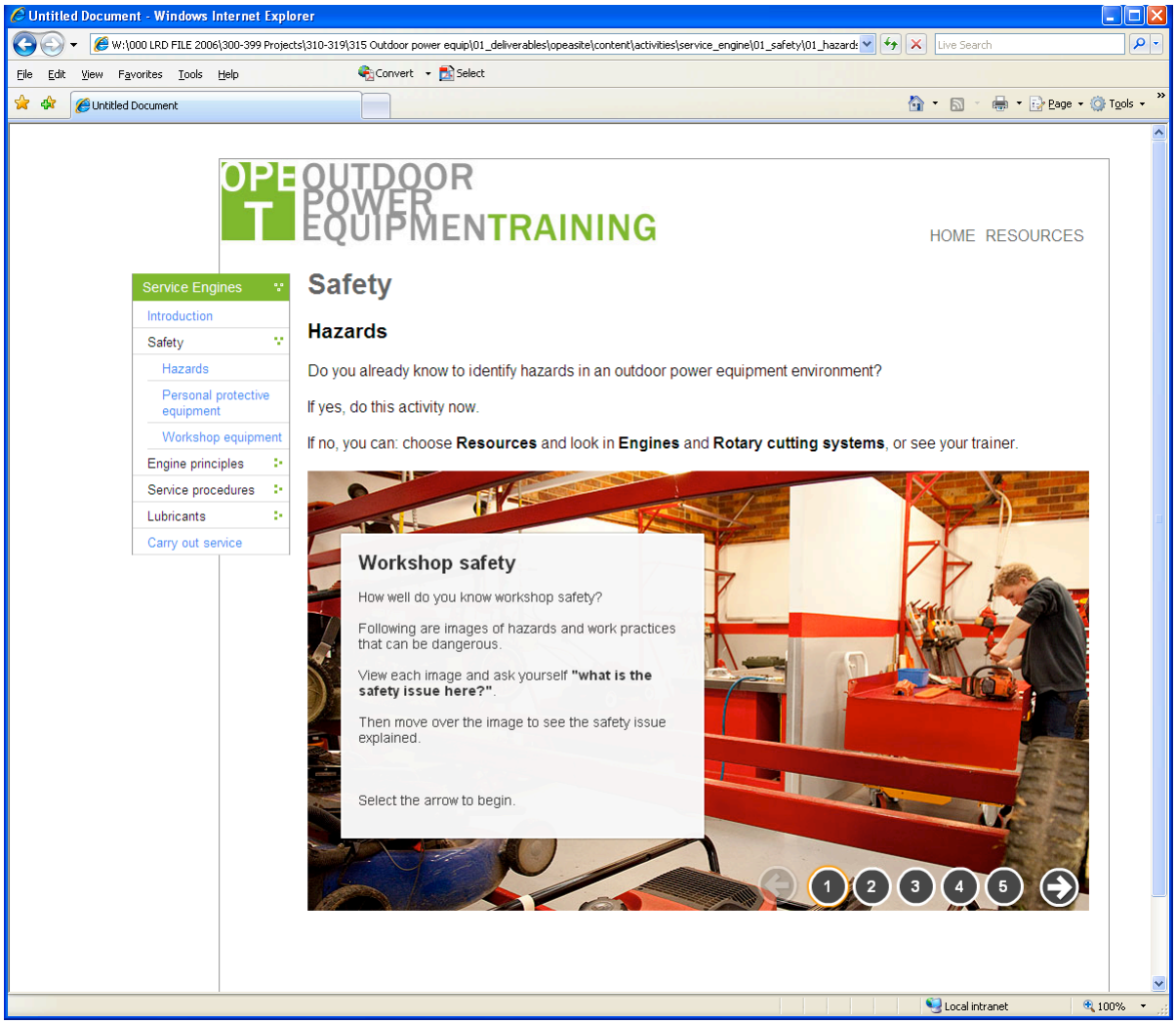

Untitled Document - Windows Internet Explorer
OUTDOOR POWER EQUIPMENTTRAINING
HOME RESOURCES
Service Engines
Introduction
Safety
Engine principles
Service procedures
Lubricants
Carry out service
Service engines
Activities are provided in this section supporting the unit AUR201570A Service engines and associated engine components (outdoor power equipment).
Use the activities to test your knowledge.
To find information about a topic, use RESOURCES from the top menu.
Select a topic from the left side menu.
© Commonwealth of Australia 2010 | Licensed under AEShareNet - S Licence

In the below example the training activity Safety – Hazards has been selected.

The learner is now presented with an activity that will challenge their understanding of workshop hazards. All instructions necessary to complete the activity are presented to the learner.

If at anytime the learner wishes to access resources (information) to assist them complete the activity they can choose Resources from the top right hand link. These resources will open in a new window allowing both the activities and resources to be available simultaneously.

Alternatively the learner can select Home from the top right hand link to return to the Home page and choose a different unit.

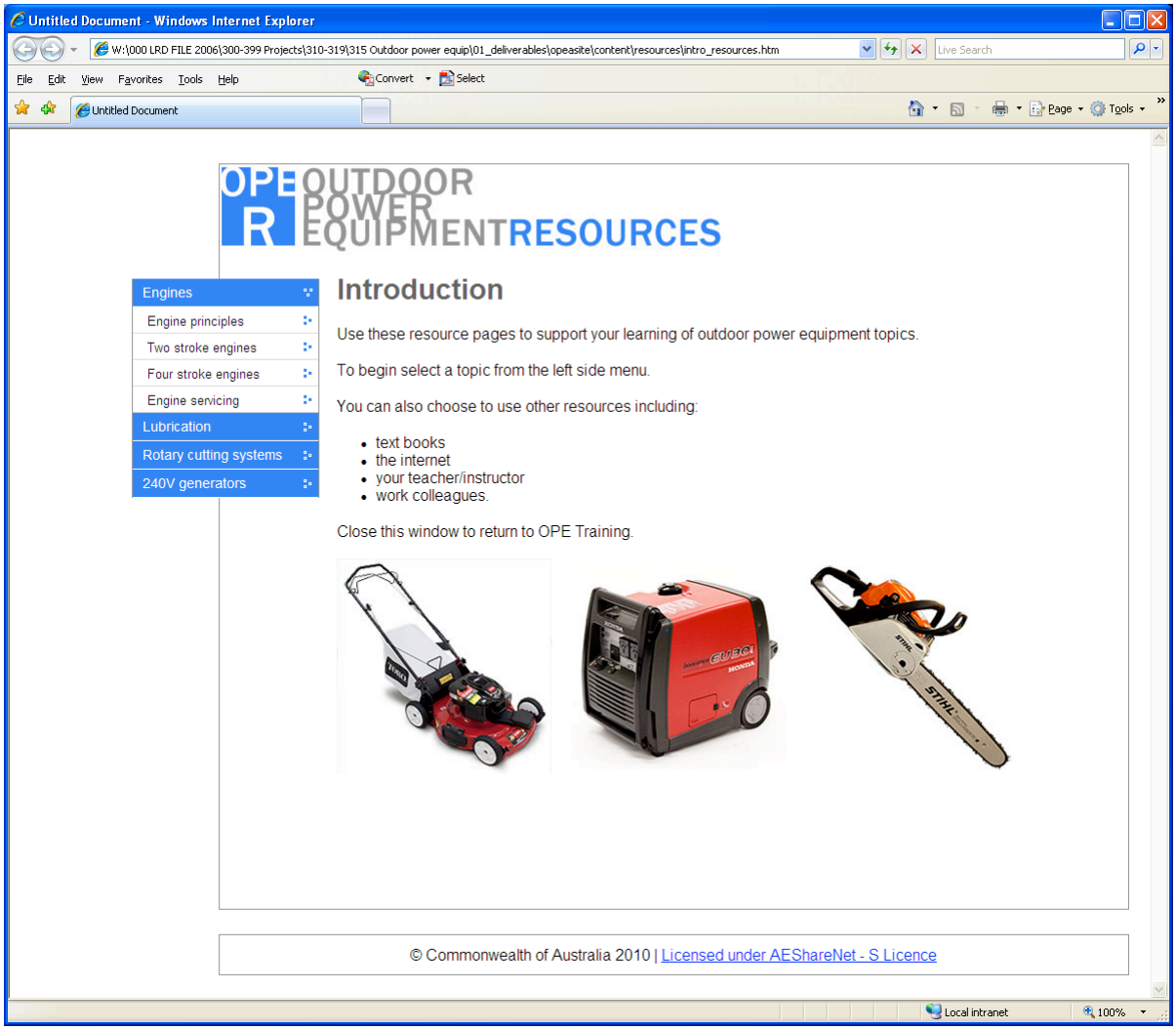

Untitled Document - Windows Internet Explorer
OUTDOOR POWER EQUIPMENT TRAINING
HOME RESOURCES
Service Engines
Introduction
Safety
Hazards
Personal protective equipment
Workshop equipment
Engine principles
Service procedures
Lubricants
Carry out service
Safety
Hazards
Do you already know to identify hazards in an outdoor power equipment environment?
If yes, do this activity now.
If no, you can: choose Resources and look in Engines and Rotary cutting systems, or see your trainer.
Workshop safety
How well do you know workshop safety?
Following are images of hazards and work practices that can be dangerous.
View each image and ask yourself "what is the safety issue here?".
Then move over the image to see the safety issue explained.
Select the arrow to begin.
1
2
3
4
5

© Commonwealth of Australia 2010

Resource pages

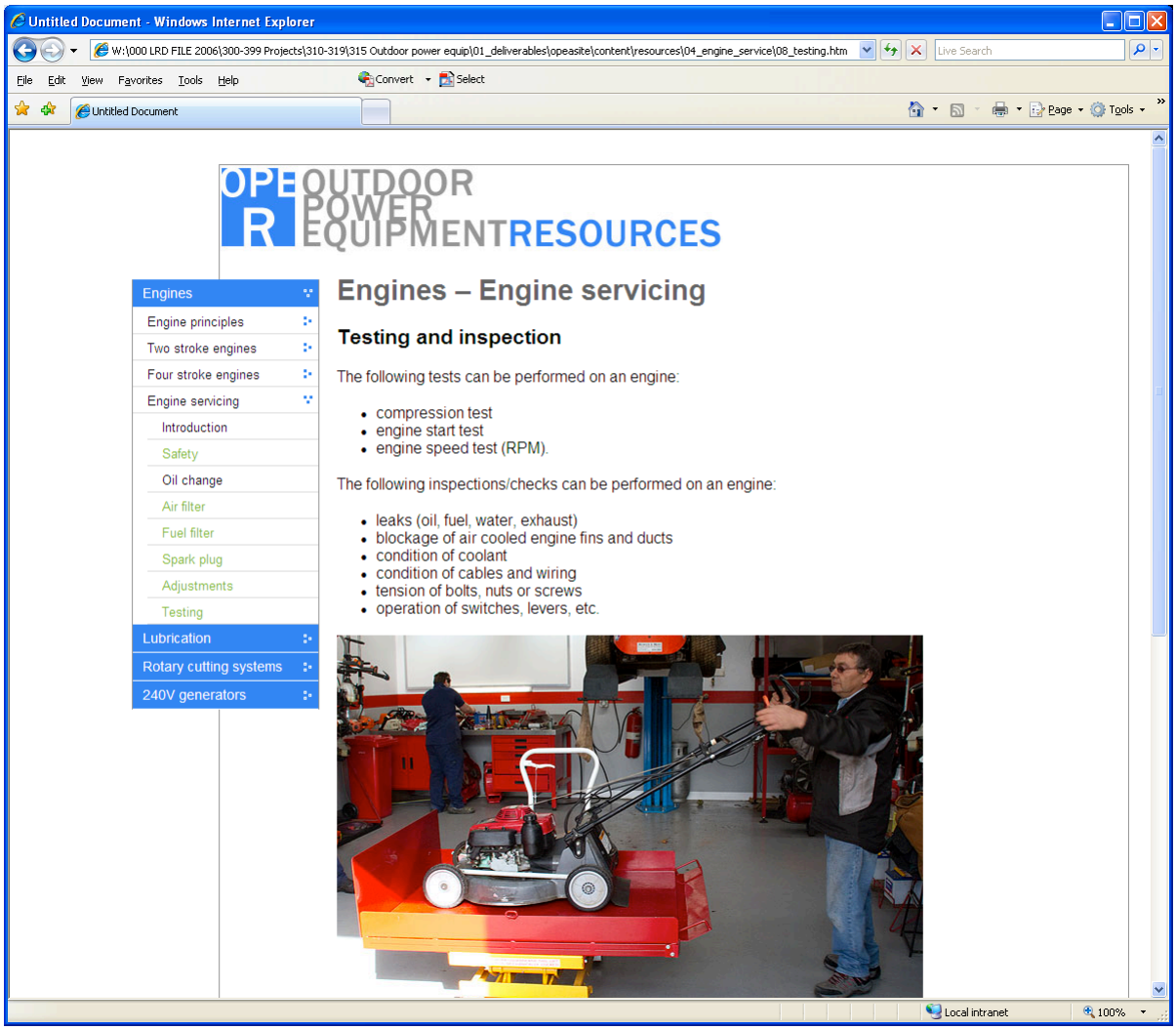
In the below example Resources have been selected from the top right hand link.

A menu on the LHS shows the topics that are available.


Untitled Document - Windows Internet Explorer
W:\000 LRD FILE 2006\300-399 Projects\310-319\315 Outdoor power equip\01_deliverables\opeasite\content\resources\intro_resources.htm
File Edit View Favorites Tools Help
Convert Select
Untitled Document
Page Tools
OPE OUTDOOR POWER EQUIPMENT RESOURCES
Engines
Engine principles
Two stroke engines
Four stroke engines
Engine servicing
Lubrication
Rotary cutting systems
240V generators
Introduction
Use these resource pages to support your learning of outdoor power equipment topics.
To begin select a topic from the left side menu.
You can also choose to use other resources including:
text books
the internet
your teacher/instructor
work colleagues.
Close this window to return to OPE Training.
© Commonwealth of Australia 2010 | Licensed under AEShareNet - S Licence
Local intranet
100%

In this example the resources for Engine servicing – testing and inspection are shown.

Resources are presented using text, images, video and animations.



Note: to help users easily identify what type of web page they are viewing, activity pages are colour coded blue and resource pages are colour coded green.

© Commonwealth of Australia 2010

Hardware and software requirements

Following are some hardware and software requirements.

Hardware

To use the learning material in this unit, learners will need a computer with the following features:

- IBM® compatible with a 1000 MHz processor running Windows 2000, XP, Vista, or
- Apple Macintosh® with a 500 MHz processor running OSX v10.3.0 with:
  - 256 Mb of RAM
  - 1024 x 768 pixel display
  - CD-ROM drive
  - internet access
  - sound card.

Software

Learners will also need the following software/plug-ins installed on their computer:

- Internet Explorer 6.0 or above (http://www.microsoft.com/)

OR

- Firefox 3.0 or above (http://www.mozilla.com/)

OR

- Safari 3.0.4 or above (http://www.apple.com/)
- Microsoft® Word 97 or a similar word processing program to open and use downloadable forms, checklists and worksheets.
- Adobe® Flash Player 9.0.28. If you haven't got this plug-in, you can download and install the latest free version from: www.adobe.com
- Adobe® PDF Reader 6.0 or above. If you haven't got this plug-in, you can download and install the latest free version from: www.adobe.com

Incorrect versions of these applications could result in information being shown in an unreadable form or not shown at all.

© Commonwealth of Australia 2010

Online teaching strategies

Hints for online activities

- If you are delivering the program online, email may be the primary method of communication with your learners, so ensure that you have a clear system of email folders for managing the traffic.
- If you are not meeting learners face-to-face on a regular basis, keep in contact using your agreed communication method.
- Be clear about timeframes by setting targets for learning. These can help you with your online lesson planning. You will need to set frameworks so your learners know what to do and when to do it.
- Be aware that some learners may be uncomfortable about sharing ideas with other learners.

Collaboration and interaction

Teaching in an online environment focuses on facilitating and guiding the learner's progress. Learners have significant learning resources available to them in e-learning materials, in the workplace and on the internet. Helping your learners to navigate this information and pinpoint the relevant materials to meet performance criteria is your central role. It requires a clear statement of learning objectives and regular feedback from you on learner progress. Email and discussion boards and Web 2.0 technologies are powerful communication tools when applied in this context.

E-learning materials are designed to encourage learner collaboration and you should decide how to facilitate this collaboration. The activities are customisable depending on requirements. For example, you might set up a discussion board topic that includes a start and finish date and a proportion of final assessment weighted to participation. You might notify your learners of these requirements by email, as well as through an initial posting on the discussion board. The discussion board (along with other tools) is a useful record of learner contributions for assessment purposes.

Online discussions will only work if there is a sense of team collaboration, so it is important that you consider how to develop this team environment. Here are a few tips.

© Commonwealth of Australia 2010

Starting together as a group – online icebreakers

- You can use an online icebreaker in a computer training room or with learners who are at different locations.
- If you intend your learners to collaborate online (using email, a learning management system or a web discussion board), it is important to give them a chance to become familiar with each other by using the medium before they get down to the serious part.
- Go to http://www.thiagi.com for some ideas. Follow the link from Free Resources to the Freebies page, then choose Training games.
- Set group projects based on the worksheets and journals.

There are downloadable worksheets throughout the e-learning materials.

A small group could:

- work together to complete a practical task.

Some advantages of this approach are:

- it can facilitate social learning, especially useful if learners are geographically dispersed or isolated
- learners practice using online communication tools in a practical, task-focused way
- it can allow learners to practice planning, collaboration, consultation and networking skills
- it can be integrated with assessment of underpinning skills such as communication skills, and also the key competencies.

Here are some practical suggestions for implementing group projects.

- Limit teams to no more than three or four learners.
- Set a date for completion of the group project.
- Consider asking learners to write a self-assessment of their contribution to the group process. This will encourage learners to reflect on their collaborative skills and provide you with more information if you are considering using the group work as an assessment item.
- Provide guidelines on how you expect your learners to collaborate, for example entirely online, or through a mix of face-to-face meetings and online communication.
- Keep track of learners who are not contributing in group or online activities, they may still be absorbing the information that other learners offer into these conversations and need further encouragement to get involved.

© Commonwealth of Australia 2010

Tips for implementation

Here are some other types of group activities that you may like to adapt. They are in a (very) rough order from easiest to hardest for learners to do online.

- At the coalface – focusing on a particular topic, learners tell each other about their own past experiences. It is usually easy for most people to talk about their own experiences. The questions you set for the group should also encourage some critical reflection, for example 'What type of workplace accidents or injuries have you witnessed and how could they have been avoided?'
- WebQuest – learners find good websites on a particular topic. The chief idea of a web quest is to search for answers to a problem or a 'quest' on the net and then feed the information back to the group either informally or in a report. This can be through discussion, contributions to a wiki, or a group report assembled via instant messaging or emailing contributions in a text document. The facilitator can set different groups to research different aspects of a problem or workplace practice. This is a good way to develop web research skills and collaboration skills at the same time. This would be particularly useful in the tasks relating to finding information on methods of generating electricity.
- Peer review – learner's team up with a study buddy and give structured feedback on each other's work on a given task. This is useful for encouraging group collaboration and support, and to practise the important skill of giving and receiving feedback. Use the process of Praise – Improvement – Praise to facilitate this.
- Role play – use this where practising a skill is relevant, such as how you would deal with a situation where you've found a co-worker unconscious surrounded by electrical wires. Use role plays carefully. They require some skill on the part of the facilitator. Ensure that debriefing occurs to deal with any issues that come up as the group reflects on and evaluates the interactions. Much of the actual learning comes from this post role play session.
- Blogs – A blog (short for weblog) is a person's online diary. It is regularly updated and 'postings' appear in chronological order. Some blogs allow visitors to make comments or ask questions.
- Wiki's –A Wiki is used as a group online communication tool. Learners can individually contribute in group discussions, recording business ideas and opportunities. Each learner can add to or change what is posted on the Wiki and learners can set up an alert that sends an email telling them someone has made a new contribution.

© Commonwealth of Australia 2010

Social networking for collaboration and interaction

Every day, your learners communicate with each other in new and different ways. Email, mobile phones, text messaging and podcasts are common forms of communication young people use. They are powerful tools and it stands to reason that if they can be used in everyday communication, they can be used in education too.

Social networking tools allow you to assist learners to network with other learners as they complete e-learning activities.

For example, you can ask learners to create networks by:

- sharing their work in weblogs, for example writing in their own blog or sharing mobile phone photos in moblogs (mobile weblogs)
- collaborating with others to develop documents, for example using wikis to put together a response to a problem
- creating and sharing photos of their work using photo sharing software
- creating and sharing bookmarks of sites they have found useful in research
- creating and sharing media files capturing their work, for example MP3s or video files
- sharing their evidence for assessment in social networking spaces on the internet
- sharing ideas and information via a virtual conference.

© Commonwealth of Australia 2010

Preparing the learners

It is recommended that you provide an orientation to the e-learning materials in a practical, face-to-face session with learners actually using the materials. In this session, include clear directions on how you want the learners to work through the learning and define the methods of communication that will be used throughout the course (if applicable).

Using e-learning materials is not about leaving learners alone to learn for themselves, but about using a new medium as a part of an overall teaching delivery strategy. Once learners are used to using the medium they will require less support.

Beside the resources that are located in the e-learning materials it is highly recommended that you refer your learners to a range of other resources including textbooks, websites, video, etc.

© Commonwealth of Australia 2010